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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/738,435

12/17/2003

Christopher Gregory Malone

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INTELLECTUAL PROPERTY ADMINISTRATION

FORT COLLINS, CO 80527-2400

EXAMINER

LEO, LEONARD R

ART UNIT

PAPER NUMBER

3744

MAIL DATE

DELIVERY MODE

05/21/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary	Application No. 10/738,435	Applicant(s) MALONE ET AL.	
	Examiner Leonard R. Leo	Art Unit 3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 February 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28,30 and 32-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28,30 and 32 is/are rejected.
- 7) ☒ Claim(s) 33 and 34 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The amendment filed on February 27, 2007 has been entered. Claims 1-28, 30 and 32-34 are pending.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “rack” in claims 1, 18 and 25 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-8, 12-25 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tokuvara et al in view of Owens et al.

Tokuvara et al (Figures 3-7) discloses all the claimed limitations except being mounted in a rack.

Owens et al (Figure 11) discloses an apparatus comprising a chassis 80 having heat generating components 114, 116, 118, 120 therein, and an external heat exchanger mounted at the rear thereof, wherein the chassis is rack mountable (column 6, lines 4-6) for the purpose of centralizing devices to meet capacity requirements.

Since Tokuvara et al and Owens et al are both from the same field of endeavor and/or analogous art, the purpose disclosed by Owens et al would have been recognized in the pertinent art of Tokuvara et al.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Tokuvara et al in a rack for the purpose of centralizing devices to meet capacity requirements as recognized by Owens et al. Owens et al discloses a minor vertical dimension and a major depth dimension larger than a major horizontal dimension. Furthermore, the relative dimensions are considered to be an obvious design choice, producing no new and/or unexpected results and solving no stated problem.

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Aoki et al discloses an apparatus comprising a computer server chassis 3; processors 6; tubing sections 23, 13; and internal fans 14, 43 for the purpose of cooling internal components.

Since Tokuhara et al and Aoki et al are both from the same field of endeavor and/or analogous art, the purpose disclosed by Aoki et al would have been recognized in the pertinent art of Tokuhara et al.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Tokuhara et al internal fans for the purpose of cooling internal components as recognized by Aoki et al. The wherein clause is merely a functional recitation. See MPEP 2114.

Regarding claims 9 and 26, Aoki et al discloses pump 15 for the liquid cooling system.

Regarding claims 10 and 28, Aoki et al discloses cold plates 16.

Regarding claim 11, Aoki et al discloses brine or an antifreeze liquid as the working fluid. As evidenced by Fox et al (column 7, lines 4-8), water and ethylene glycol is a well known coolant with a high boiling point in electronic cooling.

Allowable Subject Matter

Claims 33-34 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

The rejection in view of Kociecki is withdrawn in view of the claim amendments.

Regarding claim 2, Owens et al discloses the heat exchanger comprises tubing 88, 90, 92 extending through fins 84.

Regarding claims 3, 8 and 12, the coupled heat exchanger fins 32e of Tokuhara et al are substantially equal to the vertical and horizontal dimensions.

Regarding claim 4, Figure 6 of Tokuhara et al discloses tubing 72 having a “first heat transfer section” abuts the CPU 36. The tubing 72 also has a “second heat transfer section” that abuts the fins 32e. Owens et al also discloses fins 84 abutting tubing 88, 90, 92.

Regarding claim 6, Tokuhara et al employs natural convection.

Regarding claims 7 and 23, the rack-mounted chassis of Owens et al inherently employs fans or blowers for forced convection.

Regarding claims 14-15, the wherein clause does not set forth a structural relationship and is inherently met by the device of Tokuhara et al.

Regarding claim 16, as noted above, the recitation of “server system” does not further limit the structure of a processor. Arguendo, Tokuhara et al discloses CPU 36.

Regarding claim 17, as noted above, the recitation of “server system” does not further limit the structure of a circuit board. Arguendo, Tokuhara et al discloses circuit board 34.

Regarding claims 19-22, the inclination of the tubing 72 of Tokuhara et al is read as “means for moving the fluid.”

Claims 7, 9-11, 26-28 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tokuhara et al in view of Owens et al as applied to claims 1-8, 12-25 and 30 above, and further in view of Aoki et al.

The combined teachings of Tokuhara et al and Owens et al lacks fans inside the chassis.

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Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection. As discussed above, Owens et al discloses the depth dimension being the largest, and the horizontal dimension being larger than the vertical dimension.

No further comments are deemed necessary at this time.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonard R. Leo whose telephone number is (571) 272-4916. The examiner can normally be reached on Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on (571) 272-4834834. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


LEONARD R. LEO
PRIMARY EXAMINER
ART UNIT 3744

May 11, 2007